

Abstract

A reflector antenna with a self supported feed assembly that may be formed by injection molding. A waveguide portion of the feed assembly has a dielectric cone at a distal end that supports and retains a sub reflector, for example along a periphery of the sub reflector. A conductive surface coating on an internal surface of the waveguide and a bottom surface of the sub reflector creates surfaces with RF reflective and conductive properties. The return loss of the feed assembly is reduced due to a reduction of the thickness of the material forming the dielectric cone, compared to prior dielectric block designs and a soft boundary condition produced by dielectric coating of the waveguide which aids in reducing reflections to the vertex area of the reflector.